



Work Instruction (WI)

DIRECTIVE NO. 270-WI-6400.1.4K
EFFECTIVE DATE: 02/03/2016
EXPIRATION DATE: 02/03/2021

APPROVED BY Signature: Original Signed By
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COMPLIANCE IS MANDATORY

Responsible Office: 270/Information and Logistics Management Division

Title: Packing and Marking of Project Parts

PREFACE

P.1 PURPOSE

This procedure describes the processes for the packaging and marking of electrical, electronic, electromechanical (EEE) parts and mechanical hardware, and supplements the guidance contained in NPR 6000.1 and GPR 6400.1.

P.2 APPLICABILITY

This procedure applies to all EEE parts and mechanical hardware maintained by the Code 270 Project Support Team for use in space flight projects and ground support systems which are covered under the scope of the Goddard Space Flight Center (GSFC) Management System (MS) Policy. Packaging and marking of these products is managed by the Code 273 Supply and Equipment Management Branch and supported by the Project Support Team of the Code 279 logistics services contractor.

P.3 REFERENCES

- a. 270-WI-4520.2.1, Receiving Project Parts.
- b. 270-WI-6400.1.5, Storage of Project Parts
- c. 300 PG-8730.6.1 GSFC Electrostatic Discharge (ESD) Control Plan
- d. ANSI/ESD S20.20, ESD Association Recommended Standard for the Development of an Electrostatic Discharge Program
- e. GPR 5340.2, Documentation and Control of Process Non-conformances and Customer Complaints
- f. GPR 5340.4, Problem Reporting and Problem Failure Reporting
- g. GPR 6400.1, Logistics Support
- h. IPC/JEDEC J-STD-033, Standard for Handling, Packing, Shipping and Use of Moisture/Reflow Sensitive Surface Mount Devices
- i. Issue Documents
- j. NPR 6000.1, Requirements for Packaging, Handling, and Transportation of Aeronautical and Space Systems, Equipment and Associated Components
- k. Sensitive Electronic Device Caution Symbol

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P.4 CANCELLATION

270-WI-6400.1.4J, Packaging and Marking of Project Parts

P.5 TOOLS, EQUIPMENT, AND MATERIALS

- a. Material handling carts
- b. Various packaging material
- c. Marking and labeling materials

P.6 SAFETY PRECAUTIONS AND WARNINGS

- a. The Packaging function is conducted in a working warehouse. Standard safety precautions apply.
- b. Material processed may be bulky and heavy. Particular emphasis is placed on proper lifting techniques and use of material handling equipment.
- c. It is mandatory that safety shoes be worn as required while engaged in Packaging functions.
- d. Material processed may be electrostatic sensitive. Particular emphasis is placed on electrostatic discharge (ESD) handling procedures.
- e. Material processed may be moisture sensitive. Particular emphasis is placed on proper handling procedures.

P.7 TRAINING

Certification is required in order to handle any material classified as Electrostatic Discharge Sensitive (ESDS), as required by 300 PG-8730.6.1, GSFC Electrostatic Discharge (ESD) Control Plan.

P.8 RECORDS

Record Title	Record Custodian	Retention
EEE Parts Packaging Reference File	Project Parts Warehouse Supervisor	*NRRS 1-72B2 - Destroy when superseded or obsolete.
Issue Documents	Project Parts Tech/Warehouseman	*NRRS 1-94/A – Destroy (2) two years after completion or cancellation of requisition.

"NRRS 1441.1, NASA Records Retention Schedule"

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P.9 MEASUREMENT/VERIFICATION

There are no metrics defined for this instruction.

Instructions

In this document, a requirement is identified by “shall,” a good practice by “should,” permission by “may” or “can,” expectation by “will,” and descriptive material by “is.”

1. GENERAL PROCEDURES AND RESPONSIBILITIES

This section contains procedures and responsibilities applicable to the packaging and marking activities necessary to ensure that material stored and distributed are packaged in a manner that ensures protection.

1.1 Supply Operations Branch Manager Responsibilities

The Code 279 Supply Operations Branch Manager is responsible for providing overall supervision of all activities and personnel related to EEE parts and mechanical hardware handling and processing in support of GSFC and other NASA Center Projects.

1.2 Project Parts Warehouse Supervisor Responsibilities

- a. Provides supervision of all Project Parts warehouse activities and personnel.
- b. Ensures that items prepared by Project Parts personnel are properly packaged.

1.3 Project Parts Technician, Inspector, and Warehouseman Responsibilities

- a. Packages and labels material for storage and distribution.
- b. Responds to special requirements and requests regarding packaging.
- c. Stores material in accordance with 270-WI-6400.1.5, Storage of Project Parts.
- d. Ensures that all packaging and marking procedures meet GSFC and NASA packaging standards.
- e. Coordinates with the Packing and Crating Section and the Traffic Management Section on shipments going off site, where applicable.

2. PACKAGING

2.1 Overview of Packaging Process

Upon receipt of an issue document, the technician or warehouseman shall properly prepare material for distribution. Only clean, unmarked bags, boxes and cushioning material shall be used. The guidelines and standards referenced in this document must be observed. After the packaging process has been

completed, the inspector, warehouseman or technician shall initial the issue document to indicate who performed the task.

2.2 Packaging and Containers

All material received for storage will be kept and stored in its original container and packing materials whenever possible. When re-packaging is required, the warehouseman or receipt/inspector shall ensure the appropriate packaging and container are used to safely store and transport the material. The re-packaging should be equal to or better than the packaging and container the material was received in.

When preparing material from project stock for shipment, the warehouseman will first consider the existing packaging/container. If the existing packaging/container is not sufficient to survive the common stresses induced in shipping, re-packaging shall be accomplished. Sensitive components should be packaged so as not to come in contact with one another or move around inside a container regardless of the position of the container (on its side or upside down, etc).

2.3 Electrostatic Sensitive Material

Electrostatic sensitive material shall be packaged in accordance with 300 PG-8730.6.1.

2.4 Plastic Encapsulated Microcircuits (PEMs)

All Plastic Encapsulated Microcircuits (PEMs) and other nonhermetic surface mount devices (SMDs) will be stored and packaged in accordance with IPC/JEDEC J-STD 033.

2.5 Mechanical Hardware

Mechanical hardware will be packaged to ensure maximum protection based on characteristics such as:

- a. Material Type
- b. Size
- c. Weight
- d. Fail Safe/Safe Life Status
- e. Recurring Demand

3. PACKING

As required, the packing of materials to be shipped off site should be coordinated with the Code 279 Packing and Crating Section.

4. INSTRUCTIONS FOR MARKING

4.1 Marking Material for Storage

All items packaged for storage will be labeled with the assigned stock number and part number. The packaging for electrostatic sensitive items shall be marked with a Sensitive Electronic Device Caution Symbol. Moisture sensitive items shall have proper identification as outlined in J-STD-033.

4.2 Marking Packages for Distribution

All items packaged for distribution will be labeled with the assigned stock number, part number and quantity. Electrostatic sensitive items shall be marked with a Sensitive Electronic Device Caution Symbol. Whenever an electrostatic sensitive item is included as part of a multiple item shipment, ESD labeling shall be placed on the exterior of the shipping package as well as on the specific electrostatic sensitive item.

4.3 Marking of Parts

The practice of marking parts for the purpose of identifying flight and non-flight material no longer exists at GSFC. Project requirements for this type of marking should be referred to the Office of Flight Assurance.

5. NONCONFORMANCE MANAGEMENT

The overall Corrective Action/Preventive Action (CAPA) Lead for the activities in this work instruction is the Code 273 Supply Team Lead. The CAPA serves as the principal point of contact within ILMD responsible for the management and proper functioning of the nonconformance process in this functional area. He/she provides technical oversight and identifies nonconformance trends that may require changes to existing policies or procedures, and reports significant issues to higher management. The CAPA Lead is also responsible for reviewing and processing the Product Findings (PR/PFR), and Process Nonconformances initiated in-house or received from any source as well as directing and documenting corrective and preventive action. The primary documentation for these activities shall be created in the automated META System, which is accessed via the [GSFC MS website](#).

All Product Findings and Process Nonconformances shall be initiated, processed and dispositioned in accordance with GPR 5340.2, Documentation and Control of Process Non-conformances and Customer Complaints, and GPR 5340.4, Problem Reporting and Problem Failure Reporting.

Appendix A – Definitions

- A.1 Electro-Static Discharge (ESD): A transfer of an electrostatic charge (static electricity) between objects at different (electrostatic) levels. It is caused by direct contact or induced by an electrostatic field. ESD has the “potential” to damage sensitive electronic parts if not dissipated properly.
- A.2 ESD Material: Material that is sensitive to electro-static discharge and could be damaged by it. Special Handling is required.
- A.3 META System - Meta is a state-of-the-market IT/Software system, used across the center, to perform and manage processes for the operation of the GSFC Management System.
- A.4 Moisture Sensitive Material: Material that is classified as being sensitive to ambient humidity. If these parts are soldered after absorbing moisture, there is the likelihood that they will be damaged.
- A.5 Issue Documents: Describes internal supply documents used by Project Parts to initiate material distribution. Types of issue documents include: the 270-FORM-0127, Issue Document; the 270-FORM-0088, Manual Receipt Document; and the Advanced Materials Management System pick slip.
- A.6 Packaging: Application of use of adequate protective measures to prevent damage during transportation and storage, including application of packages and wraps, cushioning, and complete identification marking of unit, intermediate and exterior containers.
- A.7 Packing: The final placement of items or packages in exterior shipping containers or other media, including necessary blocking, bracing, cushioning, weatherproofing, exterior strapping, and marking.
- A.8 Preservation: Application or use of adequate protective measures to prevent deterioration from environmental hazards, including, as applicable, the use of appropriate cleaning and drying methods, preservatives, and wrapping for protection from chemical danger.
- A.9 Project Parts: EEE parts or mechanical hardware that are obtained by the Code 279 Project Support Team for distribution to projects. These parts may be used by the projects for engineering and/or flight equipment.
- A.10 The names “Code 279 Project Support”, “Project Support Team”, and “Project Support” are interchangeable and refer to the Code 279 Project Support section to support the Center, NASA programs, and projects related to mission requirements.

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Appendix B – Acronyms

CAPA - Corrective Action/Preventive Action
EEE – Electrical, Electronic, Electromechanical
ESD – Electrostatic Discharge
GSFC – Goddard Space Flight Center
MS – Management System
NCR - Nonconformance Reports
PR/PFR – Product Findings

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CHANGE HISTORY LOG

Revision	Effective Date	Description of Changes
Baseline	1 Oct 98	Initial Release
A	1 Feb 99	<ul style="list-style-type: none"> - Add Quality Record information to section P4. - Adds section 8.4 on Non-conformance Reporting
B	27 Apr 99	<ul style="list-style-type: none"> - Inserted new P8 Cancellation. Renumbered P8 to P9. Renumbered all subparagraphs under P9. - 9.4.1 Update NCR organization with correct project name and lead designation. - 9.4 Add wording to indicate that all audit discrepancies will be documented with a NCR
C	1 June 99	<ul style="list-style-type: none"> - Modified P4 to indicate, "No quality records identified". - Minor format changes throughout document.
D	13 August 99	<ul style="list-style-type: none"> - 9.4 Modified to add procedures for major and minor non-conformances.
E	10 Feb 00	<ul style="list-style-type: none"> - Modified P6.b. to read "NPG 6000.1, Requirements for Packaging, Handling, and Transportation for Aeronautical and Space Systems, Equipment and Associated Components" - Changed the web site for the automated NCR/CAS system to http://ncr.gsfc.nasa.gov.
F	23 Dec 02	<ul style="list-style-type: none"> - Converted to most recent WI template form. - P.8 – Added new record on Record Table - P.10. - Added definitions for Electro-Static Discharge, ESD Material, and Moisture Sensitive Material - Modified 3.1 and 4.1 to include moisture sensitivity procedures and precautions. - Added Section 3.3 Under Instructions for Packing regarding Peer Review for the packaging used. - Changed all occurrences of Project Parts Section to read Project Support Team
G	4 May 04	<ul style="list-style-type: none"> - Change "Optional Form 87, Electrostatic Sensitive Discharge Label" with "Sensitive Electronic Device Caution Symbol" - Change "Oracle Pick Slip" to "Issue Document" - P3 Add "M. EEE parts Packaging Reference File" - Change P8 Record's Title "Proper Packaging Picture File" with "EEE Parts Packaging Reference File"

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Revision	Effective Date	Description of Changes
		<ul style="list-style-type: none"> - P10 Definitions add “i” Issue Document . . .” - P.1.2 Replace Title “Project Parts Warehouseman and Receipt/Inspector Responsibilities” with “Project Parts Technician and Warehouseman Responsibilities” - P.2.1 Replace paragraph - P.2.2 Replace Second paragraph - P.2.4 Add New Section “Plastic Encapsulated Microcircuits” - P.2.5 (old 2.4) Change Title from “Non-sensitive Material” to “Mechanical Hardware” - P.2.5d (old 2.4d) replace “Flight/Non-flight status” with “Fail Safe/Safe Life Status” - Delete (old 2.5) “All items packaged for issue to a customer will undergo a peer review of the packaging used. A peer review is a second check on all packing and labeling to ensure propriety, accuracy and completeness. Improper packaging will be brought to the attention of the Material Handling Supervisor who will ensure the item is properly packaged prior to release” - Changed 1.2c to read <i>Coordinates with the Packing and Crating Section and the Traffic Management Section on shipments going off-site, where applicable.</i> - Revised the Nonconformance Section 5.1 through 5.3 to a standard format. - Add “Issue Document” to records table in P.8.
H	4 Feb 05	<ul style="list-style-type: none"> • As directed during the FY04 Center Rules Review, the Responsible Office modified this document to remove requirements that were no longer needed and to clearly distinguish requirements from supporting information. Administrative changes were made throughout to correct responsible organization names and codes, and to re-title Goddard Procedures and Guidelines (GPG) to Goddard Procedural Requirements (GPR) and NASA Procedures and Guidelines (NPG) to NASA Procedural Requirements (NPR).
H	14 May 06	<ul style="list-style-type: none"> • Administratively updated to reflect a change in the owning organization code from 230 to 270.
I	29 May 09	<ul style="list-style-type: none"> • Changed all references from the Quality Management System (QMS) to the Management System (MS) • P10 i – added types of issue documents to definition for clarification

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Revision	Effective Date	Description of Changes
		<ul style="list-style-type: none">• Replaced all references to NASA STD 8739.7 with GSFC-WM-001• 1.2 – added responsibilities for Project Parts Warehouse Supervisor• 2.1 – deleted requirement for a peer or supervisor review• 5.0 – updated nonconformance reporting guidance
J	25 Sept 14	<ul style="list-style-type: none">• Converted document to new template• Replaced all references to GSFC-WM-001 with 300 PG-8730.6.1
K	3 Feb 16	<ul style="list-style-type: none">• P3 Deleted GPR 1710.1 reference• P8 Updated NRRS information• Updated with correct GPR 5340.4, Problem Reporting and Problem Failure Reporting and deleted GPR 5340.2, Documentation and Control of Process Nonconformances and Customer Complaints• 5.0 – updated language to coincide with implementation of META system

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